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EX PARTE OR LATE FILED

January 6, 2000

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

VIA MESSENGER

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
445 Twelfth Street, SW, Room TW-A425  
Washington, DC 20554

*Written Ex Parte Presentation*

Re: IB Docket 98-172

Dear Ms. Salas:

This written *Ex Parte* presentation is submitted to the above-referenced docket on behalf of Hughes Communications Galaxy, Inc. and Hughes Communications, Inc. (together "*Hughes*")<sup>1</sup> in response to an *Ex Parte* presentation that a technical consultant to the Lockheed Martin Corporation, Dr. Richard Barnett, submitted to the Commission on October 28, 1999.

Dr. Barnett submitted his filing as the "co-chairman of the GSO FSS Ka-Band Blanket Licensing Industry Working Group." However, as he indicated in his submission, the matters addressed in the filing were not vetted in the Working Group and do not represent an industry consensus.

While Hughes is largely in agreement with the views of Lockheed and Dr. Barnett that are expressed in his filing, Hughes is submitting this letter to address certain particulars of

<sup>1</sup> As set forth in the Comments and Reply Comments of Hughes in the above-referenced docket, Hughes has a strong interest in this proceeding as the licensee for the Spaceway Ka band satellite system and as the applicant for the SpacewayEXP and SpacewayNGSO Ka band satellite systems.

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that submission and to offer a few points of clarification with respect to the formulas and procedures suggested in Dr. Barnett's filing.

1. Reference Interference Protection Levels for Receive Earth Stations

Hughes agrees that adoption of some reference antenna off-axis gain pattern would be a useful tool in evaluating the validity of claims by earth stations licensees with regard to interference from adjacent satellite downlink transmissions. Without such a tool, it might be difficult to determine whether the problem being complained about was the result of the antenna design or the result of an unwanted signal from an adjacent satellite. Clearly, earth stations that do not meet the reference antenna pattern should be permitted to operate at Ka band as they do in other bands. But these "non-compliant" earth stations cannot be allowed to claim interference protection from operations that a "compliant" antenna would not be harmed by. Furthermore, with one technical correction,<sup>2</sup> Hughes has no objection to the reference antenna off-axis gain pattern proposed by Dr. Barnett.

However, the adoption of any antenna reference pattern should not undermine the recommendations in the Second Report of the Blanket Licensing Industry Working Group with regard to the downlink pfd coordination threshold for spacecraft transmissions. The Working Group's consensus on a spacecraft downlink pfd coordination threshold was based on the premise that compliance with the threshold value would "pre-coordinate" all transmissions from a Ka band spacecraft with all other U.S. space station and earth station licensees, regardless of the nature of the transmission. The Working Group did not address adopting a reference pattern, because of the view that earth station performance was irrelevant in evaluating the acceptable level of interference from adjacent spacecraft. In other words, it would be up to the spacecraft operator/user to arrange for appropriate antennas that could coexist with adjacent spacecraft operating at or below the downlink pfd threshold, or above that level in the case of spacecraft coordinated at higher power levels.

Thus, the adoption of a reference pattern should not create any inference that a "compliant" earth station has any basis to object to downlink transmissions from adjacent spacecraft (spaced at 2° or more) that operate at or below the downlink pfd coordination

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<sup>2</sup> Hughes notes that the measurement units for the gain pattern should be in dBi not dBW/40kHz, as set forth on Page 3 of Dr. Barnett's filing. The correct off-axis gain mask for receive earth stations is shown below in blackline format. Hughes believes that Dr. Barnett concurs with this correction.

29 - 25log( $\theta$ )	<u><del>dBW/40kHz</del>dBi</u>	for $2.0^\circ \leq \theta \leq 7^\circ$
7.87	<u><del>dBW/40kHz</del>dBi</u>	for $7^\circ < \theta \leq 9.23^\circ$
32 - 25log( $\theta$ )	<u><del>dBW/40kHz</del>dBi</u>	for $9.23^\circ < \theta \leq 48^\circ$
0	<u><del>dBW/40kHz</del>dBi</u>	for $48^\circ < \theta \leq 180^\circ$

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threshold, or that operate at higher power levels that have been coordinated with the spacecraft with which that earth station communicates.

Therefore, to avoid any possible ambiguity, if the Commission adopts a reference receive antenna pattern, the Commission should also explicitly provide in its rules that an earth station licensee -- even if its earth station meets the reference pattern -- may not be heard to complain about transmissions from a U.S.-licensed satellite that is operating at or below the downlink pfd coordination threshold level, or that is operating at higher power levels that have been coordinated with the spacecraft with which that earth station communicates.

## 2. Proposed Evaluation Procedure for Off-Axis Spectral Density Limits (Uplink)

Hughes agrees with Lockheed and Dr. Barnett that requiring licensees to meet only an off-axis EIRP spectral density coordination threshold was an essential element to reaching an industry consensus on uplink transmissions. The flexibility provided by this approach was critical in allowing companies with different designs and business plans to come to consensus. The Commission should not depart from this thoroughly-considered and negotiated approach. That said, Hughes generally agrees with the suggestion by Lockheed that the Commission require applicants for Ka band blanket earth station licenses to submit information about the reference transmit antenna gain mask for their earth stations.

However, Hughes submits three minor technical corrections set forth below. Hughes believes that Dr. Barnett and Lockheed concur with all of these corrections.

The first correction (shown below in blackline format) is a change to the measurement units for the gain mask set forth on page 2 of Lockheed's *Ex Parte* filing. :

R - 25log( $\theta$ )	<del>dBW/40kHz</del> <b><u>dB</u></b>	for $2.0^\circ \leq \theta \leq 7^\circ$
R - 21.13	<del>dBW/40kHz</del> <b><u>dB</u></b>	for $7^\circ < \theta \leq 9.23^\circ$
R + 3 - 25log( $\theta$ )	<del>dBW/40kHz</del> <b><u>dB</u></b>	for $9.23^\circ < \theta \leq 48^\circ$
R - 29	<del>dBW/40kHz</del> <b><u>dB</u></b>	for $48^\circ < \theta \leq 180^\circ$

The second correction (shown below in blackline format) is to the last sentence on page 2 of Lockheed's *Ex Parte* filing, which relates to gain patterns outside of the area bounded by  $10^\circ$  on either side of the antenna boresight along the GSO arc:

The applicant should also provide a simple table that adds up all these angular exceedences and give a total (aggregate) value, which should not be greater than  $20^\circ$  across the ~~entire 360~~**340** degree range of off-axis angles **(+10 degrees .. 180 degrees .. -10 degrees)**.

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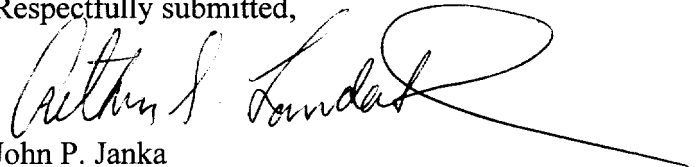
Finally, the last correction (shown below in blackline format) is to the formula on page 3 of Lockheed's *Ex Parte* filing that relates to the proposed Commission Evaluation Procedure. As indicated below, the sign for the factor  $10\log(N)$  should be plus (+), not minus (-).

$$R + [\text{maximum power spectral density in dBW per 40 kHz}] -_{\pm} 10 \log(N) \leq 18.5 \text{ dBW.}$$

\* \* \* \*

Thus, with the clarification and corrections discussed above, Hughes supports the *Ex Parte* filing by Lockheed and Dr. Barnett. An original and two copies of this letter are enclosed.

Respectfully submitted,



John P. Janka  
Arthur S. Landerholm  
of LATHAM & WATKINS

cc: Thomas Tycz  
Richard Engelman  
Harry Ng  
Fern Jarmulnek  
Karl Kensinger  
Steven Selwyn  
Dr. Richard Barnett  
Carlos Nalda